UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 09/673,686 | 07/25/2001 | GALINA MIKHAILIVNA ERKHOVA | ERKHOV-1 PCT | 2044 |

2292 7590 06/17/2004

BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

| EXAMINER | |
|---|---|
| CANELLA, KAREN A | |
| **ART UNIT** | **PAPER NUMBER** |
| 1642 | |

DATE MAILED: 06/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/673,686 | ERKHOV | |
| | Examiner | Art Unit | |
| | Karen A Canella | 1642 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) 6-11 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 6-11 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 3/28/2002.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: See Continuation Sheet.

Continuation of Attachment(s) 6). Other: PTO 02-5062, 02-5103, and 2002-5058.

## DETAILED ACTION

Acknowledgement is made of applicant's election with traverse of Group I drawn to a method for producing an antiserum. After review and reconsideration of the restriction requirement, in light of applicants arguments and the instant amended claims, the restriction requirement is withdrawn.

Claims 1-5 have been canceled. Claims 6-11 have been added. Claims 6-11 are examined on the merits.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 recites "a specific antiserum that specifically binds antigen-stimulated lymphocytes", however, no reference is made in the active method steps for the introduction of a specific antigen. For purpose of examination, the claim will be read as a method of producing an anti-idiotypic anti-embryonic antiserum.

Claim 6, section iii) recites "immunizing an animal of the same genetic line". It is unclear if the "same genetic line" refers to the first animal which was immunized, or the animal from which the fetus was taken; further section v) recites "intact organs of said animal" and it is not clear if said intact organs are referring to organs of the animal from which the fetus was taken, or organs of the animal that was immunized.. For purpose of examination, section i) will be read as "immunizing a first animal" and section iii) will be read as immunizing an animal of the same genetic line as the first animal that was immunized; section v) will be read as adding cells of intact organs of animal of the same gen6tic line as those that were immunized.

Claim 6, section v) recites "intact organs" it is unclear how the adjective "intact" can be used in conjunction with "cells" as organs would have to be dispersed to individual cells in order to add "cells" rather than chunks of tissue. For purpose of examination, the limitation of "intact" will not be construed as further limiting "organs".

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 6-11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 6 carries the limitation "wherein the fetus used is not a human being". The examiner understands the reason for the incorporation of this limitation, however the specification and claims as filed does not support this provision. It is noted that the specific embodiment of using a rat fetus is set forth by the specification as an example of the embryonic tissue used to generate the anti-idiotypic anti-embryonic serum. Amendment of the claims to limit the fetal tissue to "rat" would overcome this rejection.

Claim 11 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the method of diagnosing a malignant tumor according to the equation of claim 11 wherein the diagnosis of a malignant tumor is made when alpha is greater than or equal to 1.5 when rat anti-idiotypic, anti-embryonic sera is used to detect tumors, wherein the physiological sample is human blood, does not reasonably provide enablement for said method wherein the physiologic sample is not blood or when anti-idiotypic, anti-embryonic serum from mammals other than the rat are used in combination with blood from a human or when rat or other anti-idiotypic anti-embryonic sera is used with blood samples taken from mammals other than human, for instance rat, mouse, cat, dog or horse. The specification does not enable any

person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

The equation set forth in claim 11 wherein a value of alpha greater than or equal to 1.5 is correlated with the presence of a malignant tumor was obtained through empirical observation of erythrocyte sedimentation using blood samples taken from humans which were exposed to rat anti-idiotypic anti-embryonic antigens. The erythrocyte sedimentation test requires that erythrocytes be present in the sample, and thus blood is required. Further, the value of alpha as being indicative of the presence of a tumor was obtained empirically through the testing of various samples of human blood using the rat anti-idiotypic anti-embryonic serum. The anti-idiotypic anti-embryonic serum would bind to anti-tumor antibodies in the blood sample. This is dependent upon the cross reaction between the idiotype of the rat serum and the idiotype of the human antibodies. If other combinations of species are used the degree of cross reaction would not be expected to be the same, therefore the "cut-off" value of 1.5 would also not be expected to be the same. Given the lack of teachings in the specification regarding the cross-reactivity of the serum obtained from fetus of different species and the extent to which said serum binds to anti-tumor antibodies from other mammalian species, it would be undue experimentation without reasonable expectation of success in order to practice the claimed method using a value of 1.5 as a cut off point for the determination of malignancy.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 6-11 are rejected under 35 U.S.C. 102(a) as being anticipated by Erkov et al (WO 97/22881) as evidenced by the PTO Translation # 2002-5058.

Claim 6 is drawn to a method for producing a specific antiserum comprising immunizing an animal with a suspension of fetal cells, recovering the spleen cells from said animal,

performing a second immunization in another animal of the same genetic line, recovering an antiserum from the second immunization, adding cells of animals of the same genetic line to .to said antiserum, and separating the supernatant from the sediment to obtain the specific antiserum with the proviso that the fetus used is not a human. Claim 7 embodies the method of claim 6 wherein the separation is carried out by filtration. Claim 8 embodies the method of claim 1 in which the second immunization is performed as repeated administration of the cell suspension over an interval of time.

Claim 9 is drawn to a method for diagnosis of a malignant tumor comprising contacting the antiserum of claims 6, 7 or 8 with a sample of a tissue, blood or other physiological sample of a subject to be examined and detecting binding of the antiserum to antibodies in the sample and determining the presence of a malignant tumor by deviation of the test result from a control test. Claim 10 embodies the method of claim 9 wherein the method of detection of an immunoflourescent test or a erythrocyte sedimentation test. Claim 77 embodies the method of claim 9 in which a diagnosis of a malignant tumor is made when alpha of the recited equation is greater than or equal to 1.5.

Erkhov et al disclose the claimed methods as evidenced by pages 7-9 of the PTO translation # 2002-5058. It is noted that the equation presented on page 9 of the translation differs from the instant equation only by algebraic manipulation. Thus, Kmg is the same as the instant "alpha".

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Erkhov et al (Klinicheskaya Meditsina, 1995, pp. 33-34) as evidenced by PTO Translation # 02-5062 in view

of Erkov et al (Voprosy Onkologii, 1991, Vol. 37, No. 6, pp. 751-754) as evidence by the PTO Translation # 02-5103

The specific embodiments of the claims are recited above.

Erkhov et al (1991) teach that oncogenesis is realized when there is a humoral response against surface differentiation embryonic antigens (page 4, lines 12-16). Erkhov et al teach that embryo specific surface antigens associated with tumor growth are evolutionarily conserved and stable in tumor progression (page 3, lines 25-27).

Erkhov et al (1995) teach the use of an anti-idiotypic anti-embryonic serum as a multipurpose diagnostic test for tumor growth (page 1 of the translation). Erkhov et al teach the detection of tumor growth by means of exposing blood samples taken from human patients with the anti-embryonic anti-idiotypic antiserum. and measuring erythrocyte sedimentation.

It would have been prima facie obvious at the time the invention was made to produce an anti-idiotypic anti-embryonic serum and use said antiserum for the detection of tumor growth by exposing blood from patients to the antiserum. One of skill in the art would have been motivated to do so by the teachings of Erkhov et al (1991) who state that embryo-specific surface antigens associated with tumor growth are evolutionarily conserved and stable in tumor progression. One of skill in the art would conclude that there was similarity between embryonic surface antigens in non-human animals and tumor surface antigens in human because Erhkhov et al teach that the antigens are evolutionarily conserved.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karen A Canella whose telephone number is (571)272-0828. The examiner can normally be reached on 10 a.m. to 9 p.m. M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Chan can be reached on (571)272-0841. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Karen A. Canella, Ph.D.
06/14/2004

KAREN A. CANELLA PH.D
PRIMARY EXAMINER